

Pharmacology 1 and Prescription Knowledge

Parasympathomimetics, muscle relaxants (effective on
central and neuromuscular junctions)

Refer lecturer for course updated notes.

Students are obliged to follow the courses for evaluation process and
presented notes are preliminary drafts for the whole evaluation
process.

- Synthesis, storage, release and inactivation of Ach
- Mechanism of action
- Details in phospho-inositol system
- Cholinergic Receptors

- Classification
- Directly Acting Cholinergic Drugs:
 - I. Choline Esters
 - Acetylcholine
 - Carbachol
 - Methacholine
 - Bethanechol

- II. Cholinomimetic Alkaloids

- a. Mainly Muscarinic Agonists

- Natural Alkaloids:

- Muscarine

- Pilocarpine

- Arecholine

- Synthetic Alkaloid:

- Oxotramorine

- Selective M3 agonists

- Cevimeline

- b. Mainly Nicotinic Agonists
- Natural Alkaloids:
 - Nicotine
 - Lobeline
- Synthetic Alkaloids:
 - Dimethyl phenyl piperazinium (DMPP)
 - Varenicline

- Tertiary alkaloids

- Pilocarpine

- Nicotine

- Lobeline

- Quaternary amines

- Muscarine

- Indirectly Acting Cholinergic Drugs (Anticholinesterases)
 - I- Reversible
 - a. Carbamates
 - Tertiary amines
 - Physostigmine
 - Quaternary Ammonium compounds
 - Neostigmine
 - Pyridostigmine
 - Distigmine
 - Ambenonium
 - Demecarium
 - b. Alcohols
 - Edrophonium
 - c. Miscellaneous
 - Tacrine
 - Donepezil
 - Galantamine
 - Rivastigmine

- Irreversible Anticholinesterases (Organophosphorus Compounds)

- 1. Therapeutically useful:

- Ecothiophate

- 2. War Gases:

- Sarin

- Tuban,

- Soman

- 3. Insecticides:-

- Parathion

- Malathion

- DiisopropylFluorophosphate (DFP)

- Tetramethyl Pyrophosphate (TMPP)

- Octamethyl Pyrophosphotetraamide (OMPA)

- Parasympathomimetics
- Drug-induced disorders of the nervous system
- Visual disorders
- Pupillary changes
- Refractive changes
- Retinopathy
- Optic Neuropathy
- Diplopia
- Nystagmus

- Pharmacology of the Aqueous Humor Outflow (Miotics)
- Echothiophate Iodide
- Muscarinic Receptor Agonists-Oral complications
- Epilepsy-Pilocarpine
- Pilocarpine-radiotherapy
- methacholine chloride
- ABT-594
- A-85380

- Parasympatholytic agents
 - Direct acting
 - Muscarinic receptor antagonists
 - Belladonna alkaloids
 - Semisynthetic
 - Synthetic quaternary amm.
 - Synthetic nonquaternary amm
 - All competitive antagonists
 - Nicotinic receptor blockers
 - Nn ganglion blockers
 - Depolarizing blockers
 - Competitive blockers
 - Non competitive antagonists
 - Nm NMJ blockers
 - Depolarizing blockers
 - Non-Depolarizing blockers
 - Indirectly acting (non receptor blockers)

Muscle relaxants

- Principle of action of neuromuscular blockers at the neuromuscular junction
- Centrally acting
- Locally acting
- Mechanism of action
- Drug interactions
- Adverse effects

- NEURO MUSCULAR BLOCKING AGENTS. CLASSIFICATION. •
- A) Non depolarizing (competitive) blockers. •
- Long acting: d-Tubocurarine, Pancuronium, Doxacurium, Pipecuronium. •
- Intermediate acting: Vecuronium, atracurium, cisatracurium, Rocuronium, Rapacuronium •
- Short acting: Mivacurium. •
- B) Depolarizing blockers. •
- Succinyl choline (suxamethonium). •
- Decamethonium.
- C) Directly acting agents •
- Dantrolene sodium. •
- Quinine.
- Other agents that interfere with neuro muscular transmission. • Aminoglycosides, tetracycline, polypeptide antibiotics: these are not used as muscle relaxants

- Use of muscle relaxants in veterinary anesthesia
- Clinical exercises regarding veterinary use